CLAIMS

What is claimed is:

1. A method comprising:

generating a first linearization data structure having a first plurality of output value to output intensity pairs for a first pen; and

generating, based at least in part on the first linearization data structure of the first pen, a second linearization data structure having a second plurality of output value to output intensity pairs for a second pen to conform output intensities of the second pen to output intensities of the first pen.

2. The method of claim 1, wherein the generating of the second linearization data structure comprises determining for a first output intensity of the first pen having first model values of a color space model, an output value of the second pen that yields a second output intensity having second model values of the color space model where the second model values substantially proximate the first model values.

3. The method of claim 2, wherein the determining comprises selecting the output value of the second pen from among a plurality of candidate output values of the second pen, based at least in part on the proximities of corresponding model values of the color space model of the output intensities of the candidate output values to the first model values of the first output intensity of the first pen.

4. The method of claim 3, wherein the method further comprises computing for a candidate output value, a sum of absolute differences between the color space model values of the output intensity of the candidate output value and the first model values.

5. The method of claim 4, wherein the computation of the sum of absolute differences comprises computing a difference in lightness values between the

color space model values of the output intensity of the candidate output value and the first model values.

6. The method of claim 4, wherein the computation of the sum of absolute difference comprises computing a difference in chrominance values between the color space model values of the output intensity of the candidate output value and the first model values.

7. The method of claim 1, wherein the first pen is a weaker pen of the first and second pens, and the method further comprises first determining which of the first and second pens is the weaker pen.

8. The method of claim 7, wherein the determining of which of the two pens is the weaker pen comprises comparing a first output ramp of the first pen with a second output ramp of the second pen.

9. The method of claim 1, wherein the method further comprises first setting a common saturation level for the two pens to be equal to or weaker than the weaker one of the two pens.

10. The method of claim 1, wherein the first and second pens are color pens, their outputs are of the same color, and the color is a selected one of a cyan, a magenta and a yellow color.

11. The method of claim 1, wherein the first and second pens are pens of different imaging systems.

12. The method of claim 1, wherein the first and second pens are pens of one imaging system.

13. The method of claim 12, wherein the one imaging system is a bi-directional imaging system, and the first and second pens are one physical pen,

with the first pen being the physical pen used in a first imaging direction, and the second pen being the physical pen used in a second imaging direction.

14. The method of claim 1, wherein the method further comprises

generating a third linearization data structure having a third plurality of output value to output intensity pairs for use to linearize output intensities of a third pen of the imaging system; and

generating, based at least in part on the third linearization data structure of the third pen, a fourth linearization data structure having a fourth plurality of output value to output intensity pairs for use to linearize output intensities for a fourth pen of the imaging system, and to conform the output intensities of the fourth pen to the output intensities of the third pen;

where the first and the fourth pen, and the second and third pen are corresponding different color members of a first and a second set of pens respectively.

15. The method of claim 1, wherein at least one of the first and the second linearization data structure is of a look-up table form.

16. The method of claim 1, wherein the generating of the first linearization data structure is performed by a manufacturer of an imaging system comprising the first pen.

17. The method of claim 1, wherein the generating of the second linearization data structure is performed by a user of an imaging system comprising the second pen.

18. A method comprising:

selecting a first output value to output intensity pair of a first linearization data structure of a first pen, the first output value to output intensity pair identifying a first output value of the first pen to yield a first output intensity;

generating a first plurality of color space model values for the first output intensity;

determining a second output value of a second pen that yields a second output intensity having a second plurality of color space model values that substantially proximate the first plurality of color space model values; and

forming a second output value to output intensity pair for a second linearization data structure of the second pen, using the determined second output value and the corresponding second output intensity.

19. The method of claim 18, wherein the determining comprises generating the second color space model values, and computing for the second output value, a sum of absolute differences between its second color space model values and the first color space model values.

20. The method of claim 19, wherein the computation of the sum of absolute differences comprises computing a difference in lightness values between the second color space model values and the first color space model values.

21. The method of claim 19, wherein the computation of the sum of absolute differences comprises computing a difference in chrominance values between the second color space model values and the first color space model values.

22. The method of claim 18, wherein the first pen is a weaker pen of the two pens, and the method further comprises first determining which of the two pens is the weaker pen.

23. The method of claim 22, wherein the determining of which of the two pens is the weaker pen comprising comparing a first output ramp of the first pen with a second output ramp of the second pen.

24. The method of claim 18, wherein the selecting, the generating, the determining and the forming are performed by a manufacturer of an imaging system comprising the second pen.

25. The method of claim 18, wherein the selecting, the generating, the determining and the forming are performed by a user of an imaging system comprising the second pen, using the imaging system.

26. A method comprising:

receiving by an imaging system, a first desired colorant, including a first desired intensity of the first desired colorant, for a first pixel of an image to be imaged on a media;

selecting a first pen of the imaging system corresponding to the first desired colorant;

accessing a first linearization data structure of the first pen to determine a first appropriate output value to drive the first pen to substantially output the first desired colorant onto the media at the first desired intensity, with the first linearization data structure having been established in view of a second linearization data structure of a second pen, to conform the colorant intensities outputted by the first pen to the colorant intensities outputted by the second pen; and

driving the first pen in accordance with the determined first appropriate output value to substantially output the first desired colorant onto the media at the first desired intensity to contribute towards imaging the first pixel of the image on the media.

27. The method of claim 26 further comprising:

receiving by the imaging system, a second desired colorant, including a second desired intensity of the second desired colorant, for the first pixel of the image to be imaged on the media;

selecting a third pen of the imaging system corresponding to the second desired colorant;

accessing a third linearization data structure of the third pen to determine a second appropriate output value to drive the third pen to substantially output the second desired colorant onto the media in the second desired intensity, with

the third linearization data structure having been established in view of a standard and not in view of another pen; and

driving the third pen in accordance with the determined second appropriate output value to substantially output the second desired colorant onto the media at the second desired intensity to contribute towards imaging the first pixel of the image on the media.

28. The method of claim 26 further comprising:

receiving by the imaging system, a second desired colorant, including a second desired intensity of the second desired colorant, for a second pixel of the image to be imaged on the media;

selecting a second pen of the imaging system corresponding to the second desired colorant;

accessing a third linearization data structure of the third pen to determine a second appropriate output value to drive the third pen to substantially output the second desired colorant onto the media in the second desired intensity, with the third linearization data structure having been established in view of a standard and not in view of another pen; and

driving the third pen in accordance with the determined second appropriate output value to substantially output the second desired colorant onto the media at the second desired intensity to contribute towards imaging the second pixel of the image on the media.

29. An apparatus comprising:

storage medium having stored therein a plurality of instructions designed to enable the apparatus to:

select a first output value to output intensity pair of a first linearization data structure of a first pen, the first output value to output intensity pair identifying a first output value of the first pen to yield a first output intensity,

generate a first plurality of color space model values for the first output intensity,

determine a second output value of a second pen that yields a second output intensity having a second plurality of color space model values that substantially proximate the first plurality of color space model values, and

form a second output value to output intensity pair for a second linearization data structure of the second pen, using the determined second output value and the corresponding second output intensity; and

a processor coupled to the storage medium to execute the instructions.

30. The apparatus of claim 29, wherein the instructions are designed to enable the apparatus to generate, as part of the determining, the second color space model values, and compute for the second output value, a sum of absolute differences between its second color space model values and the first color space model values.

31. The apparatus of claim 30, wherein the instructions are designed to enable the apparatus to compute, as part of the computation of the sum of absolute differences, a difference in lightness values between the second color space model values and the first color space model values.

32. The apparatus of claim 30, wherein the instructions are designed to enable the apparatus to compute, as part of the computation of the sum of absolute differences, a difference in chrominance values between the second color space model values and the first color space model values.

33. The apparatus of claim 29, wherein the first pen is a weaker pen of the two pens, and the instructions are further designed to enable the apparatus to first determine which of the two pens is the weaker pen.

34. The apparatus of claim 33, wherein the instructions are further designed to enable the apparatus to compare, as part of the determining of which of the two

pens is the weaker pen, a first output ramp of the first pen with a second output ramp of the second pen.

35. The apparatus of claim 29, wherein the apparatus is a computing system of a manufacturer of an imaging system comprising the second pen.

36. The apparatus of claim 29, wherein the apparatus further comprises the second pen.

37. The apparatus of claim 36, wherein the apparatus further comprises the first pen.

38. The apparatus of claim 37, wherein the first and the second pen are the same physical pen, with the first pen being the physical pen used in a first imaging direction, and the second pen being the physical pen used in a second imaging direction.

39. An apparatus comprising:

a first pen to selectively output a first colorant at different intensities; and

a first linearization data structure having a first plurality of output value to output intensity pairs, formed in view of a second linearization data structure of a second pen equipped also to output the first colorant at different intensities, for use to linearize the intensities of the first colorant outputted by the first pen, and to conform the intensities of the first colorant outputted by the first pen to the intensities of the first colorant outputted by the second pen.

40. The apparatus of claim 39, wherein the apparatus further comprises the second pen and the second linearization data structure.

41. The apparatus of claim 39, wherein the apparatus further comprises

a third pen to selectively output a second colorant at different intensities, the first and third pen being members of a set of multi-colorant pens; and

a third linearization data structure having a second plurality of output value to output intensity pairs, formed in view of a standard and not in view of another linearization data structure of another pen.

42. The apparatus of claim 39, wherein the apparatus further comprises logic designed to respond to a selection of the first colorant, including a desired intensity of the first colorant, for a first pixel of an image to be imaged on a media, by

selecting the first pen,

accessing the first linearization data structure of the first pen to determine a first appropriate output value to drive the first pen to substantially output the first colorant onto the media in the desired intensity, and

driving the first pen in accordance with the determined first appropriate output value to substantially output the first colorant onto the media to contribute towards imaging the first pixel of the image on the media.

43. An article of manufacture comprising:

a storage medium; and

a plurality of instructions stored in the storage medium, the instructions designed to enable an apparatus to

generating a first linearization data structure having a first plurality of output value to output intensity pairs for a first pen of a first imaging system; and

generating, based at least in part on the first linearization data structure of the first pen, a second linearization data structure having a second plurality of output value to output intensity pairs for a second pen of a second imaging system to conform output intensities of the second pen to output intensities of the first pen.

44. The article of claim 43, wherein the instructions are designed to enable the apparatus to

select a first output value to output intensity pair of the first linearization data structure of the first pen, the first output value to output intensity pair identifying a first output value of the first pen to yield a first output intensity,

generate a first plurality of color space model values for the first output intensity,

determine a second output value of the second pen that yields a second output intensity having a second plurality of color space model values that substantially proximate the first plurality of color space model values, and

form a second output value to output intensity pair for the second linearization data structure of the second pen, using the determined second output value and the corresponding second output intensity.

45. The article of claim 44, wherein the instructions are designed to enable the apparatus to generate, as part of the determining, the second color space model values, and compute for the second output value, a sum of absolute differences between its second color space model values and the first color space model values.

46. The article of claim 44, wherein the first pen is a weaker pen of the two pens, and the instructions are further designed to enable the apparatus to first determine which of the two pens is the weaker pen.

47. The article of claim 43, wherein the first and second imaging systems are the same imaging system.

48. The article of claim 43, wherein the apparatus and at least a selected one of the first and second imaging systems are one of the same.

49. A method comprising the steps of:

creating a first linearization data structure having a first plurality of output value to output intensity pairs for a first pen; and

creating, based at least in part on the first linearization data structure of the first pen, a second linearization data structure having a second plurality of output value to output intensity pairs for a second pen to conform output intensities of the second pen to output intensities of the first pen.

50. The method of claim 49, wherein the step of creating the second linearization data structure comprises a step of deciding for a first output intensity of the first pen having first model values of a color space model, an output value of the second pen that yields a second output intensity having second model values of the color space model where the second model values substantially proximate the first model values.